

OSU 1986

VEGETABLE CULTIVAR EVALUATIONS

- * GREEN WRAP TOMATOES
- * FRESH MARKET STAKED TOMATOES
- * SUPER SWEET CORN
- * NORMAL SWEET CORN

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ACKNOWLEDGEMENTS

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- * OHIO VEGETABLE RESEARCH
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1986 GREENWRAP AND STAKE TOMATO CULTIVAR EVALUATION - FREMONT & COLUMBUS

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This is a summary of our work evaluating several green wrap tomato cultivars in Fremont and fresh market stake cultivars in Columbus.

FREMONT

Trial Design & Cultural Practices Transplants were obtained through BHN research of Florida. Seven cultivars were grown in a randomized complete block design with 3 replications.

Spacing was 60 inches between rows and 18 inches between plants within rows. There were 15 plants per plot and they were planted on May 15, 1986. Stakes were placed at two plant intervals. Plants were pruned according to directions provided by BHN research. For Sunny, 3-4 suckers were removed; BHN 24: 2 suckers removed; BHN 28 and 66 were pruned the same as Sunny, and BHN 67 & 69B were pruned 1 more sucker than Sunny.

On May 13, 700 lbs/A of 10-20-20 were applied broadcast and disced in. The field was then sprayed with 4 lbs/A Devrinol. At planting 1/2 pint of 10-34-0 was applied per plant. On June 13, 1/2 pint of Sencor was applied post. On June 18, the plants were sidedressed with 150 lbs/A of 10-34-0. The insecticide/fungicide schedule is as follows:

<u>Material</u>	<u>Dates</u>
Copper	6/14, 6/23
Manzate 200	6/14, 6/23, 7/4, 7/28,
Guthion	6/23,
Kocide & Dyrene	7/1
Sevin	7/4
Bravo	7/14, 7/27, 8/4, 8/12
Benlate	7/18
Dithane M 45	8/4

COLUMBUS

Trial Design & Cultural Practices Trial design was as for Fremont. Seed was sown on March 10 and 17, 1986. Seedlings were transplanted to 2 1/4" cell paks and moved outdoors to

harden them off on May 6. Cultivars: Taurus, Mountain Pride, Celebrity, HXP 2807, and Pik Red were planted in the field on May 20. Cultivars: Castle Crown, Revolution, Castle King, Taylor, and Burton were planted on May 29. One thousand pounds/A of 15-15-15 were broadcast and worked in after plowing. At field planting, each plant received 1/2 pint of 10-52-8 starter solution, mixed 3 pounds per 50 gallons of water. Sencor was applied post at 1/4 pound ai/A after the plants were well established. Irrigation was applied at the rate of 1 inch per week.

No fungicides were applied during the season. There were two applications of Sevin and Thiodan and 1 application of Guthion for insect control.

Weather Data Vegetable Crops Branch - Fremont

Month	Precipitation Rain(inches)
May	4.46
June	3.17
July	5.35
August	2.79
Septem.	2.83

>> See sweet corn trials for Columbus weather data.

Table Of Seed Sources:

Table Code	
1. AC	Abbott & Cobb, Inc., Box 307, Feasterville, PA 19047
2. AG	Agri-Seed & Chemical, 850 Dryden Rd., Metamora, MI 48455
3. AR	ARCO Seed Co. 110 East Ross Ave., El Centro, CA 92243-9797
4. AS	Asgrow Seed Co., P. O. Box 1039, Mechanicsburg, PA 17055-1039
5. H	Harris Moran Seed Co., Moreton Farm, 3670 Buffalo Rd., Rochester, N.Y. 14624
6. P	Peto Seed Co., Inc., Greenwood, SC 29647

Table 1. Yield, Grade, and Fruit Size of Greenwrap Tomato Cultivars, Fremont-1986

Cultivar	First Harvest August 7, 1986					Total Harvest to Oct. 3, 1986				
	Marketable Yield		Percent by WT		Fruit Size (lb)	Marketable Yield		Percent by WT		Fruit Size (lb)
	No US #1	Total Wt	-----			No US #1	Total Wt	-----		
	(1000/A)	(Tons/A)	US #1	Culls		(1000/A)	(Tons/A)	US #1	Culls	
1. BHN 68 B	25.1	4.7	54	23	0.37	65.2	27.3	54	20	0.84
2. BHN 67 B	24.3	4.9	55	19	0.41	54.8	25.5	52	21	0.93
3. Mountain Pride	21.2	3.6	48	29	0.34	66.8	24.2	58	17	0.72
4. Sunny	20.9	5.1	61	11	0.49	75.5	20.1	45	17	0.53
5. BHN 66	22.5	4.1	52	23	0.37	58.9	18.7	44	29	0.64
6. BHN 24	23.7	4.5	54	22	0.38	54.5	17.4	40	29	0.64
7. BHN 28	22.1	4.3	52	18	0.39	43.8	14.8	34	34	0.68
LSD (0.05)	13.63	1.73				23.78	6.20	7.83		

Table 2. Yield, Grade, and Fruit Size of Staked Tomato Cultivars, Columbus-1986

Early Harvest (7-22 to 8-7-86)							Total Harvest to Sept. 29					
Cultivar	Seed Source	Marketable Yield		Percent by NO.		Fruit Size	Marketable Yield		Percent by WT		Fruit Size	
		US #1	Total WT	US #1	Culls		US #1	Total WT	US #1	Culls		
		(1000/A)	(Tons/A)	US #1	Culls	(lb)	(1000/A)	(Tons/A)	US #1	Culls	(lb)	
1. Celebrity	P	50	12.2	90	4	0.48	207	4	44.4	77	13	0.43
2. Mountain Pride	AG	35	7.2	81	7	0.41	225	3	41.9	82	9	0.37
3. HXP2807	H	41	8.9	86	5	0.43	207	7	39.5	83	9	0.38
4. Revolution	AC	66	13.3	81	10	0.40	207	5	38.9	83	11	0.38
5. Taurus	AG	48	9.1	79	6	0.37	205	2	36.1	70	16	0.35
6. Taylor	AR	20	3.3	83	5	0.32	204	9	34.3	73	11	0.34
7. Pik Red	H	49	11.7	82	11	0.48	143	8	34.1	81	11	0.48
8. Burton	AR	26	4.6	82	8	0.36	187	0	30.1	63	18	0.32
9. Castle Crown	AR	27	5.2	88	4	0.39	165	1	28.8	68	22	0.35
10. Castle King	AR	26	4.7	91	3	0.35	163	6	25.7	60	27	0.32
LSD (0.05)		12.27	3.21				54.01	10.26	15.28			

See: "Seed Sources" for explanations of seed source codes.

Table 3. Quality Ratings for Staked Tomato Cultivars, Columbus-1986

Cultivar	Seed Source	External Fruit Quality								Internal Fruit Quality		
		General Appear.	Green Shoulder	Conc. Crack.	Radial Crack.	Catface	Zipper	Deform. Fruit	Blot. Ripen.	Core	Color	Overall
1. Celebrity	P	G	5	4.5	4.5	5	4.5	5	5	4.5	4.0	4.0
2. Mountain Pride	AG	G	4	5	5	5	5	5	5	4.0	4.0	4.5
3. HXP2807	H	G	5	5	5	5	5	5	5	3.5	3.8	4.0
4. Revolution	AC	G	5	5	5	5	5	5	5	3.5	4.0	3.8
5. Taurus	AG	G	5	5	4.5	5	4.5	5	5	4.0	3.5	3.8
6. Taylor	AR	G	5	5	5	5	5	5	5	2.5	4.0	3.5
7. Pik Red	H	G	5	5	4	5	5	5	5	4.0	4.5	4.3
8. Burton	AR	G	5	5	4.5	4.5	5	5	5	3.5	3.5	3.5
9. Castle Crown	AR	G	5	5	5	5	4.5	5	5	3.5	5.0	4.0
10. Castle King	AR	G	5	5	4.5	5	5	5	5	4.0	3.8	4.0

Seed Sources: see Table of Seed Sources for explanation of the seed source codes.

External Fruit Appearance & Disorders (from L to R): General Appearance, Concentric Cracking, Radial Cracking, Catfacing, Zippering, Deformed Fruit, Blothy Ripening.

>>SCALE: 5 = Very Good, 1 = Poor.

Internal Fruit Ratings: Core: size and appearance at stem end.

>>SCALE: 5 = Very Good, 1 = Poor.

All ratings based on 1 harvest in August.

1986 SWEET CORN CULTIVAR EVALUATION

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FREMONT:

Charles Willer and staff

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The Ohio State University
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Columbus 43210

This is a summary of our work evaluating several super and normal sweet corn cultivars. The same cultivars were evaluated at both Fremont and Columbus in 1986. However, due to labor restraints, weather, and the increased number of research projects at Fremont, not all of the Fremont plots could be harvested at the proper time.

Trial Design At both locations, thirteen super-sweet cultivars were grown in a randomized complete block design with 4 replications. Twelve normal sweet corn cultivars were evaluated in Fremont and 13 normal varieties were evaluated in Columbus. Spacing was 36 inches between rows and 8-10 inches between plants within rows. There were 45 seeds per plot.

FREMONT

Cultural Practices: Seed was sown on June 2, 1986. Guard rows were planted to the north and south sides of rows running east and west at Fremont. All plots were planted with hand jabbers at a plant spacing as mentioned above. Super Sweet Corn plots were isolated from normal sweet corn plots. Nine hundred pounds/A of 10-20-20 were broadcast and worked in after plowing. One hundred fifty pounds of 10-20-20 fertilizer was worked in and marked out 2 weeks prior to planting. The corn was sidedressed with ammonium nitrate at a rate of 150 lbs/A. Three quarts of Lasso per acre were used for weed control. Insecticides were applied on a regular spray schedule, See below:

<u>Material</u>	<u>Date Applied</u>
Sevin	7/14, 7/18
Lannate	7/18, 8/12
Dipel	8/12

Weather Data

Vegetable Research Branch - Fremont
 Precipitation
 Month Rain(inches)

April	3.78
May	4.46
June	3.17
July	5.35
August	2.79
September	2.83

COLUMBUS

Cultural Practices: Corn was seeded on May 14, 1986. Plot size and spacing were as mentioned above for Fremont. Guard rows were planted to the east and west sides of rows running north and south with guard hills across the north and south ends of the entire planting. In addition to the other guard rows, 4 rows of an early maturing and a late maturing cultivar were planted on both the east and west sides of the entire planting of plots to enhance pollination. Super Sweet Corn plots were isolated from normal sweet corn plots. All plots were planted by hand jabber.

Prior to plowing, 15-15-15 fertilizer was applied broadcast at a rate of 1000 lbs per acre. There was also 250 pounds 6-24-12 placed 2 inches to the side and 2 inches below the seed at planting time. Dual herbicide was applied immediately after planting. Most lots of seed had been treated with a fungicide and/or insecticide. Irrigation was used throughout the season as needed.

There were no sprays for worm control as indicated by the excessive amount of ears lost to worm damage.

Weather Data University Weather Station - Columbus

Month	Precipitation Rain(inches)
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May	2.1
June	6.0
July	3.7
August	1.6
Septem.	4.1

Table of Seed Sources

Table
Codes

-
- | | | |
|----|----|---|
| 1. | AC | Abbott & Cobb, Inc., Box 307, Feasterville, PA
19047 |
| 2. | H | Joseph Harris Co., Moreton Farm, 3670 Buffalo Rd.,
Rochester, N.Y. 14624 |
| 3. | L | Liberty Seed Co., P.O.Box 806, New Philadelphia,
OH 44663 |
| 4. | TW | Twiley Seed Co.Inc., Greenwood, SC 29647 |
| 5. | SU | Sun Seeds, Eden Prairie, MN 55344 |

Table 1. Yield, and Other Characteristics of Super Sweet Corn Cultivars, Fremont-1986

Cultivar	Seed Source	Days to First Harvest	Marketable Yield/A			Percent Stand	Ear Length Husked (in)	Ear Width Husked (in)	Ear Damage (Number / 4 reps)		Tip Cover	Tip Fill	Husk Tightness
			Dozen Ears	Wt (tons/A)	Mkt %				Ear Worms	Smut			
Bi-COLOR													
1. Summer Sweet 7802	AC	83	1654	7.28	75	85	7.8	1.9	22	4	2	1	2
2. Double Delight	LI	83	1260	5.03	68	72	6.8	1.8	12	0	2	2	3
3. Summer Sweet 8502	AC	83	1331	6.40	83	78	8.1	2.0	0	2	2	1	2
Yellow													
4. Summer Sweet 7800	AC	83	2067	10.20	88	86	8.1	1.9	0	0	3	1	2
5. Pinnacle	HA	74	1855	5.85	91	78	8.9	1.7	0	1	2	2	2
6. Sweet Time	TW	83	1825	8.62	88	83	8.0	1.8	0	1	3	1	3
7. Landmark	HA	74	1795	8.26	87	89	8.2	1.8	17	0	2	1	1
9. Summer Sweet 7200	AC	74	1543	7.28	83	82	8.5	1.7	0	0	2	2	2
10. Summer Sweet 7700	AC	78	1432	6.21	79	83	8.6	1.8	1	0	2	1	3
11. Summer Sweet 7600	AC	83	1381	6.49	73	86	7.8	1.9	0	0	2	1	3
12. Main Time	TW	83	1351	6.33	71	85	8.0	1.9	16	1	2	1	2
13. Miracle	LI	78	1291	5.93	81	81	8.2	1.9	0	0	2	2	3
LSD (0.05)			211.64	1.72									

EAR SIZE: based on total length, diameter of 10 husked ears per cultivar.

EAR DAMAGE: based on total number of ears from 4 plots.

>> Tip Cover, Husk Tightness, and Tip Fill: based on average rating of 10 ears per plot.

TIP COVER: 1 = exposed; 3 = 2 inches covered.

TIP FILL: 1 = filled; 2 = unfilled 1 inch or less; 3 = unfilled greater than 1 inch.

HUSK TIGHTNESS: 1 = loose; 2 = firm; 3 = tight.

Table 2. Yield, and Other Characteristics of Super Sweet Corn Cultivars, Columbus-1986

Cultivar	Seed Source	Days to First Harvest	Marketable Yield/A			Percent Stand	Ear Length Husked (in)	Ear Width Husked (in)	Ear Damage (Number / 4 reps)			Tip Cover	Tip Fill	Husk Tightness	
			Dozen Ears	Wt (tons/A)	Mkt %				Ear Worms	Smut	Bird				
Bi-COLOR															
1. Summer Sweet 7802	AC	79	756	2.87	37	41	7.3	1.7	66	5	14	2	1	2	
2. Double Delight	LI	79	565	1.47	23	54	6.9	1.5	78	0	49	2	2	2	
3. Summer Sweet 8502	AC	79	323	1.29	23	38	7.8	1.5	45	1	5	2	2	2	
Yellow															
4. Summer Sweet 7600	AC	79	787	2.65	43	45	7.2	1.6	21	11	5	2	2	2	
5. Pinnacle	HA	79	746	2.97	33	56	8.1	1.7	52	5	45	2	2	2	
6. Summer Sweet 7800	AC	84	676	2.48	41	55	7.7	1.5	47	2	5	2	1	2	
7. Main Time	TW	84	655	2.11	39	45	7.1	1.5	37	10	3	2	2	1	
8. Sweet Time	TW	84	655	2.36	40	58	7.3	1.4	48	5	3	2	2	3	
9. Summer Sweet 7200	AC	79	575	2.29	33	49	8.1	1.7	41	16	25	2	2	2	
10. Landmark	HA	78	444	1.90	23	70	7.8	1.7	16	15	34	2	3	2	
11. Miracle	LI	79	424	1.78	24	55	7.4	1.7	47	3	42	1	2	2	
12. Summer Sweet 7700	AC	84	393	1.67	22	51	7.1	1.3	73	1	12	2	2	2	
13. Summer Delicious	LI	87	252	1.05	13	49	8.4	1.3	23	4	69	1	2	1	
LSD (0.05)			279.36	1.07		11.3									

EAR SIZE: based on total length, diameter of 10 husked ears per cultivar.

EAR DAMAGE: based on total number of ears from 4 plots.

>> Tip Cover, Husk Tightness, and Tip Fill: based on average rating of 10 ears per plot.

TIP COVER: 1 = exposed; 3 = 2 inches covered.

TIP FILL: 1 = filled; 2 = unfilled 1 inch or less; 3 = unfilled greater than 1 inch.

HUSK TIGHTNESS: 1 = loose; 2 = firm; 3 = tight.

NORMAL SWEET CORN CULTIVAR EVALUATIONS

Table 3. Yield, and Other Characteristics of Normal Sweet Corn Cultivars, Fremont-1986

Cultivar	Seed Source	Days to First Harvest	Marketable Yield/A			% Plt Stand	Ear Length Husked (in)	Ear Width Husked (in)	Ear Damage (Number / 4 reps)		Tip Cover	Tip Fill	Husk Tightness
			Dozen Ears	Wt (tons/A)	Mkt %				-----				
									Ear Worms	Smut			
Bi-COLOR													
1. Sweet Sal ('83)*	HA	78	1775	8.48	88	93	7.9	1.8	6	7	3	1	3
2. Carnival	AS	82	1583	8.59	81	99	9.8	1.9	13	0	1	3	2
3. Honeymoon	L	70	1533	5.71	80	91	7.3	1.7	0	0	3	1	2
4. Calypso ('83)*	R	82	1311	6.04	81	86	7.8	2.0	14	5	1	1	2
WHITE													
5. White Lightning	AC	82	2087	8.52	85	89	7.9	1.7	0	1	2	2	3
6. Snow Belle	AS	73	1129	3.82	69	89	7.6	1.7	2	0	3	1	1
7. Platinum Lady	L	73	726	2.56	85	78	7.5	1.7	0	0	2	3	1
Yellow 49													
8. Supreme	HA	74	1533	5.28	86	89	7.2	1.6	0	0	3	1	3
9. Sundance ('84)*	--	65	1381	4.85	90	87	7.3	1.7	0	3	2	1	2
LSD (0.05)			266.64	1.03									

* Seed Age.

EAR SIZE: based on total length, diameter of 10 husked ears per cultivar.

EAR DAMAGE: based on total number of ears from 4 plots.

>> Tip Cover, Husk Tightness, and Tip Fill: based on average rating of 10 ears per plot.

TIP COVER: 1 = exposed; 3 = 2 inches covered.

TIP FILL: 1 = filled; 2 = unfilled 1 inch or less; 3 = unfilled greater than 1 inch.

HUSK TIGHTNESS: 1 = loose; 2 = firm; 3 = tight.

NORMAL SWEET CORN CULTIVAR EVALUATIONS

Table 4. Yield, and Other Characteristics of Normal Sweet Corn Cultivars, Columbus-1986

Cultivar	Seed Source	Days to First Harvest	Marketable Yield/A			% Plt Stand	Ear Length Husked (in)	Ear Width Husked (in)	Ear Damage (Number / 4 reps)		Bird Damage	Tip Cover	Tip Fill	Husk Tightness
			Dozen Ears	Wt (tons/A)	Mkt %				Ear Worms	Smut				
Bi-COLOR														
1. Sweet Sal ('83)*	HA	78	1431	5.87	52	69	7.9	1.6	3	8	1	3	2	3
2. Honeymoon	L	78	1109	4.23	46	73	7.1	1.7	18	5	2	2	1	1
3. Carnival	AS	79	928	3.91	49	65	8.8	1.6	16	0	0	2	2	2
4. Calypso ('83)*	R	84	413	1.15	21	73	7.3	1.4	33	11	56	1	2	3
WHITE														
5. White Lightning	AC	87	978	2.62	33	67	6.9	1.4	56	21	8	2	2	2
6. Snow Belle	AS	78	958	2.63	50	63	6.0	2.0	18	6	1	2	2	1
7. Platinum Lady	L	78	323	0.76	40	57	7.3	1.4	5	1	2	2	2	2
Yellow														
8. Sugar Loaf	--	78	968	3.15	56	35	7.8	1.8	9	3	5	2	2	2
9. Supreme	HA	78	776	2.61	38	73	7.3	1.7	5	6	5	2	1	2
10. Seneca Sentry ('83)*	L	85	756	2.66	50	63	8.6	1.7	42	0	9	2	2	2
11. Zenith	HA	79	746	2.55	48	42	8.1	1.7	33	0	7	2	1	3
12. Seneca Pinto	L	84	393	1.06	34	57	6.9	1.5	16	0	10	2	2	2
13. Sundance ('84)*	--	78	383	1.34	21	61	7.9	1.7	19	13	53	1	2	1
LSD (0.05)			382.12	1.31										

* Seed Age

EAR SIZE: based on total length, diameter of 10 husked ears per cultivar.

EAR DAMAGE: based on total number of ears from 4 plots.

>> Tip Cover, Husk Tightness, and Tip Fill: based on average rating of 10 ears per plot.

TIP COVER: 1 = exposed; 3 = 2 inches covered.

TIP FILL: 1 = filled; 2 = unfilled 1 inch or less; 3 = unfilled greater than 1 inch.

HUSK TIGHTNESS: 1 = loose; 2 = firm; 3 = tight.

Table 5. Sweetness Characteristics of Super Sweet Corn Cultivars At 3 Post-Harvest Intervals, Columbus-1986

Cultivar		1 Days Post-Harvest		5 Days Post-Harvest		8 Days Post-Harvest	
		Soluble Solids	Refractive Index	Soluble Solids	Refractive Index	Soluble Solids	Refractive Index
Bi-COLOR							
1. Summer Sweet 7802	AC	12.1	1.347	12.6	1.351	14.3	1.354
2. Summer Sweet 8502	AC	9.8	1.347	12.3	1.351	11.8	1.350
3. Double Delight	LI	9.1	1.347	11.3	1.350	9.7	1.350
Yellow							
4. Summer Delicious	LI	22.8	1.368	18.6	1.361	21.6	1.366
5. Sweet Time	TW	14.8	1.355	12.1	1.351	14.5	1.354
6. Landmark	HA	14.6	1.455	14.3	1.354	12.6	1.352
7. Summer Sweet 7700	AC	14.6	1.355	15.3	1.356	12.6	1.352
8. Summer Sweet 7800	AC	14.4	1.354	13.5	1.353	14.3	1.354
9. Miracle	LI	14.1	1.353	18.8	1.362	18.2	1.360
10. Main Time	TW	13.5	1.353	12.7	1.352	11.8	1.350
11. Summer Sweet 7600	AC	12.5	1.351	12.2	1.351	12.0	1.351
12. Pinnacle	HA	12.3	1.351	13.1	1.352	13.8	1.353
13. Summer Sweet 7200	AC	11.0	1.349	12.2	1.351	11.4	1.349
LSD (0.05)		3.08	0.82	2.76	0.004	4.01	0.006

At harvest, a sample was taken for analysis for soluble solids (SS) and refractive index (RI). The sample was divided into 3 lots and stored at 40 degrees F. The post-harvest analysis appears in the table above for the 3 time periods. For each test period, certain cultivars are significantly sweeter than others at that particular time and also for the three periods. However, it cannot be determined if one cultivar is better than holding sugar than another since some cultivars seem to be gaining sugar from day 1 to day 7. This sugar increase indicates the wide variation in sugar content from ear to ear at harvest.

On day 1 after harvest, Summer Delicious had significantly greater soluble solids and Landmark had significantly greater refractive index than all other cultivars. On day 5, Summer Delicious and Miracle were sweeter than all other cultivars. On day 7, Summer Delicious is again sweeter than all other cultivars except for Miracle. The LSD values can be used to make other comparisons since there are other significant differences in sweetness.

Much appreciation is given to Winston Bash, Jeff Thomas, and Andrea Anderson from the pilot plant who ran the various sugar tests for this report.

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